



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,080	01/25/2001	Louis L. Hsu	728-189 (YOR9-2000-0756)	7147

7590 05/23/2002

Paul J. Farrell, Esq.
Dilworth & Barrese, LLP
333 Earle Ovington Blvd.
Uniondale, NY 11553

EXAMINER

CHAMBLISS, ALONZO

ART UNIT	PAPER NUMBER
----------	--------------

2827

DATE MAILED: 05/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/769,080

Applicant(s)

HSU ET AL.

Examiner

Alonzo Chambliss

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2002(response to restriction).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 25-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, 13-19 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 8, 12, 20 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's response to Notice to file missing parts of nonprovisional application on 6/15/01, has been acknowledged and made of record in Paper No. 3.

Election/Restrictions

2. Applicant's election without traverse of claims 1-24 in Paper No. 4 is acknowledged.

Claims 25-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Information Disclosure Statement

3. The information disclosure statement submitted on 1/25/01 in Paper No. 1.5 was filed before the mailing date of the non-final rejection on 5/20/02. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the petition is granted and the information disclosure statement is being considered by the examiner.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters " 28 " and " 32 " have both been used to designate the nitride layer in Fig. 4. Drawing correction is required in reply to the Office action to

Art Unit: 2827

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: " SEMICONDUCTOR DEVICE UTILIZING ALIGNMENT MARKS FOR GLOBALLY ALIGNING THE FRONT AND BACK SIDES OF A SEMICONDUCTOR SUBSTRATE ".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims 9 and 12 recite the limitation " the components " in line 3. There is insufficient antecedent basis for this limitation in the claim, thus claims 9 and 12 are indefinite.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-7, 9-11, 13-19, and 21-23, insofar as definite, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Austin et al. (U.S. 5,200,631).

With respect to Claim 1, Austin teaches at least one package (i.e. optoelectronic package) having a first and second circuit systems 61, 63. The first circuit system is transmitter chip 61, which has a system of transmitting light and the second circuit system is receiver chip 63, which has a system of receiving light. Each of the first and second circuit systems 61, 63 have a means (i.e. light transmission by optical communication) for wirelessly communicating with each other through at least one substrate 69 (see col. 8 lines 9-42). Giving the teaching of the above product, claim 1 is clearly anticipated by Austin.

With respect to Claims 2 and 14, the first and second circuit systems 61, 63 have the same operational formats, since the first circuit system operational format use a light source and the second circuit system operational format also uses a light source (see col. 8 lines 9-15 and 34-42). Giving the teaching of the above product, claims 2 and 14 are clearly anticipated by Austin.

With respect to Claims 3 and 15, the first and second circuit systems 61, 63 have different operational formats, since the first circuit system operational format is to transmit light and the second circuit system operational format is to receive light (see

Art Unit: 2827

col. 8 lines 9-15 and 34-42). Giving the teaching of the above product, claims 3 and 15 are clearly anticipated by Austin.

With respect to Claims 4 and 16, the at least one substrate is transparent since it can be made of silicon which is transparent to light with a wavelength greater than 1.1 micrometers (see col. 6 lines 46-52 and col. 7 lines 50-58). Giving the teaching of the above product, claims 4 and 16 are clearly anticipated by Austin.

With respect to Claim 5 and 17, the first and second circuit systems 61, 63 are chips (see col. 8 lines 9-20). Giving the teaching of the above product, claims 5 and 17 are clearly anticipated by Austin.

With respect to Claim 6 and 18, note the word "fabricated" makes the claim a "product by process". A "product by process" is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3); *In re Thorpe et al.*, 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. However, Austin teaches a first and second circuit systems 68, 70 fabricated (i.e. created) on at least one substrate 71 (see Fig. 4). Giving the teaching of the above product, claims 6 and 18 are clearly anticipated by Austin.

With respect to Claim 7 and 19, the first and second circuit systems 61, 63 (i.e. first and second circuit systems 68, 70) are bonded to the least one substrate 71 (see

Art Unit: 2827

Fig. 4). Giving the teaching of the above product, claims 7 and 19 are clearly anticipated by Austin.

With respect to Claim 9 and 21, the first and second circuit systems 61, 63 include first and second interconnection structures (i.e. solder balls connected to each one of the first and second circuit systems) for interconnecting a component (i.e. chip) of the first and second circuit systems 61, 63, respectively (see Fig. 4). The components 61, 63 of the first and second circuit systems are interconnecting since the first circuit component 61 is connected to substrate 67. Substrate 67 is connected to substrate 69 by spacer 19 and substrate 67 is connected to substrate 71 by another spacer 19. Substrate 71 is then connected to the second circuit system 63 by the second interconnection structures (i.e. solder balls), which is interconnected to the second circuit system 63 (see Fig. 4). Giving the teaching of the above product, claims 9 and 21 are clearly anticipated by Austin.

With respect to Claim 10 and 22, the first and second interconnection structures (i.e. solder balls) are connected to substrate 67, 71, respectively (see Fig. 4). Giving the teaching of the above product, claims 10 and 22 are clearly anticipated by Austin.

With respect to Claim 11 and 23, the at least substrate 69 includes an alignment mark (i.e. via 65) for aligning the at least one substrate 69 with alignment marks 65 of another substrate 71 (see col. 6 lines 30-34; Fig. 4). The via is used as alignment marks since the light must be transmitted through the via to the corresponding first and second circuit systems 61, 63. Giving the teaching of the above product, claims 11 and 23 are clearly anticipated by Austin.

With respect to Claim 13, Austin teaches a first and second circuit systems 61, 63. The first circuit system is transmitter chip 61, which has a system of transmitting light and the second circuit system is receiver chip 63, which has a system of receiving light. Each of the first and second circuit systems 61, 63 have a means (i.e. light transmission by optical communication) for wirelessly communicating with each other through at least one substrate 69 (see col. 8 lines 9-42). Giving the teaching of the above product, claim 13 is clearly anticipated by Austin.

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

Allowable Subject Matter

11. Claims 8, 12, 20, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach the combination a photoresist on the top and bottom of the substrate, where the photoresist is used to form an alignment pattern on the top and bottom side of the substrate. The alignment pattern forms global alignment marks on the top and bottom sides of the substrate. An opaque layer is on one side and the other side of the substrate, wherein a photoresist is on the opaque layer. The photoresist is used to form a first and second alignment patterns on one side and the other side of the substrate, respectively. The first and second alignment

Art Unit: 2827

patterns are used to form a first and second sets of global alignment marks on one side and the other side of the substrate, respectively.

Conclusion

13. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956.

AC/May 18, 2002


Alonzo Chambliss
Examiner
Art Unit 2827